Joint Virtual Battlespace

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JVB Description

JVB:

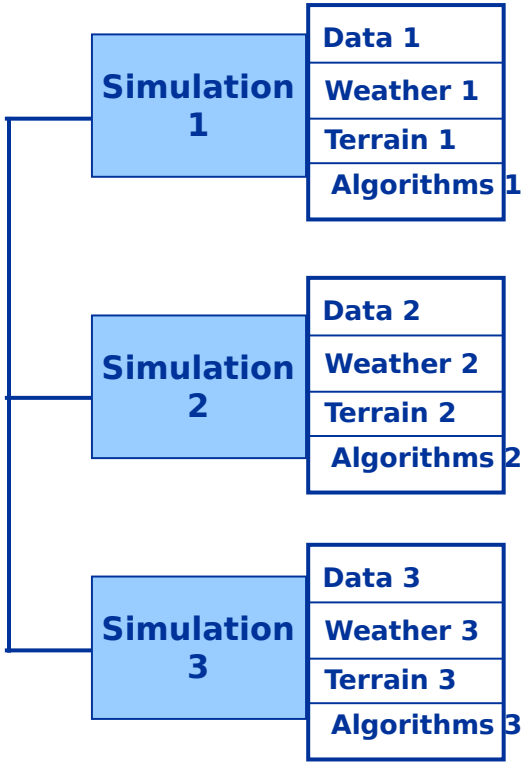
- Is a Flexible Modeling and Simulation Framework Integrating Models for System Analysis
- Enables the Capability to Measure the Combat Effectiveness of Information and It's Use
- Is a Tool Supporting Army Transformation and Acquisition Decisions in a Joint Command, Control, Communications, Computers, Intelligence, Sensors and Reconnaissance (C4ISR) Environment

The current focus of JVB is to:

- Support Acquisition Decision of the Future Combat System (FCS) Program
- Provide the Simulation Tool supporting the FCS C4ISR Study

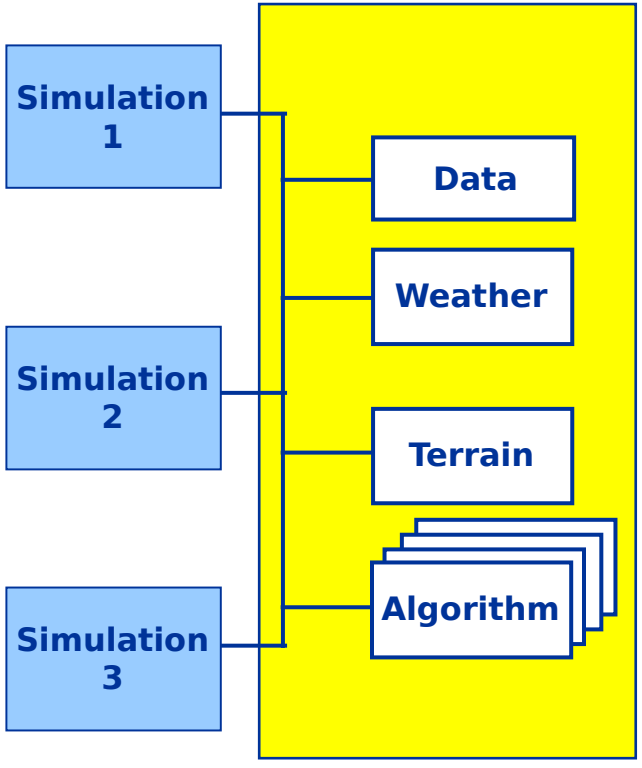
JVB Common Battlespace

Current Approach



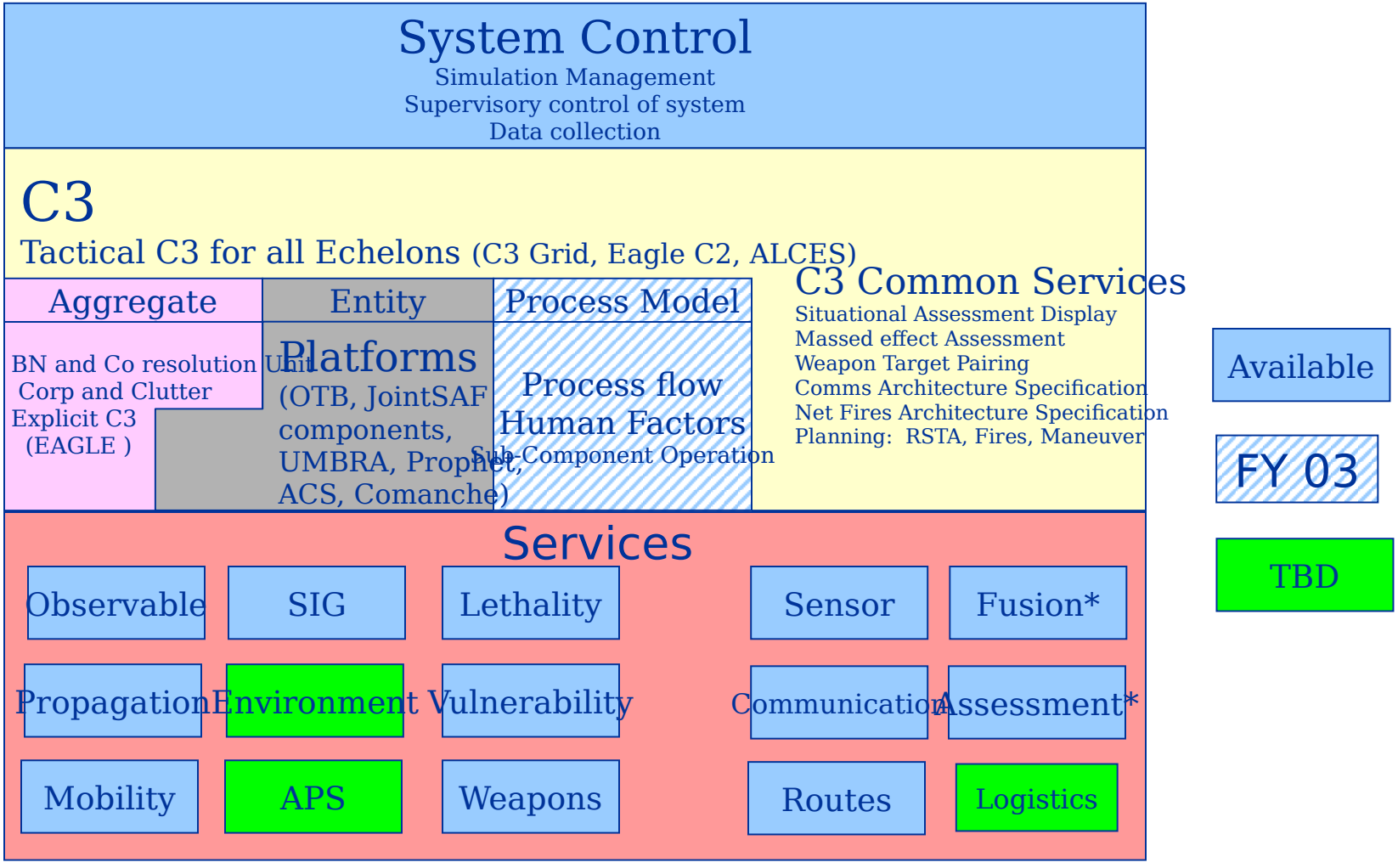
Precoordinate to Ensure Everything is as Consistent as Possible.
Post Coordinate to Interpret Inconsistencies Between Models

JVB Framework



All Simulations Use Consistent Data and Algorithms

JVB Objective Software Architecture



*Limited implementation based on requirements- functional place holders until models are validated and integrated

What JVB Can Do

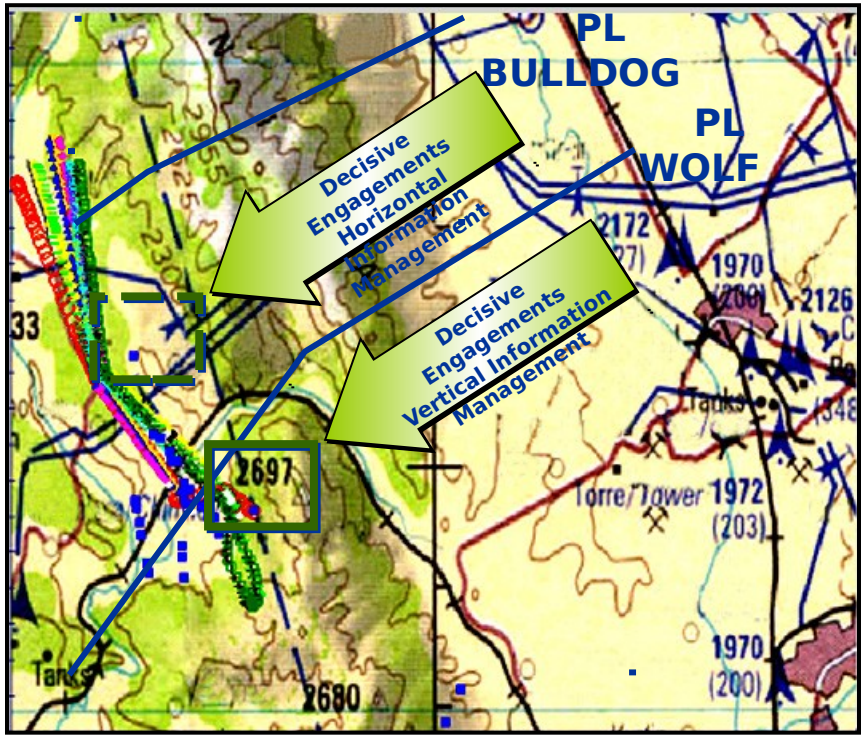
JVB Supports Operational Analysis of new and Proposed Systems, and Ways to Fight, by Studying them in a Virtual C4ISR Battlespace.

Within the Battlespace, Systems, Systems of Systems, Operations and Organization Plan, Concepts of Operations, and Tactics Techniques and Procedures may be Evaluated for "What does this do for the Warfighter?"

Examples:

- Impact on the Warfighter's Capability/Time/Resources to Accomplish his Mission
- Impact on Warfighter from Different C4ISR Architectures
- Logistics Impacts
- Human Workload

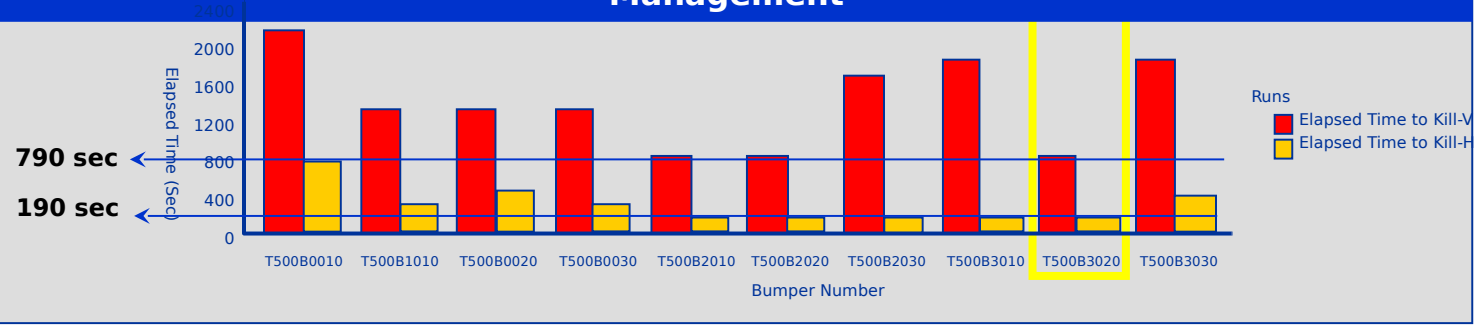
JVB Unique Capabilities



Only M&S Tool That Gives Decision Makers the Capability to Measure the Combat Effectiveness of Information and It's Use Across all Echelons

Enemy Detected Much Faster

First Detection to Engagement, Vertical versus Horizontal Information Management

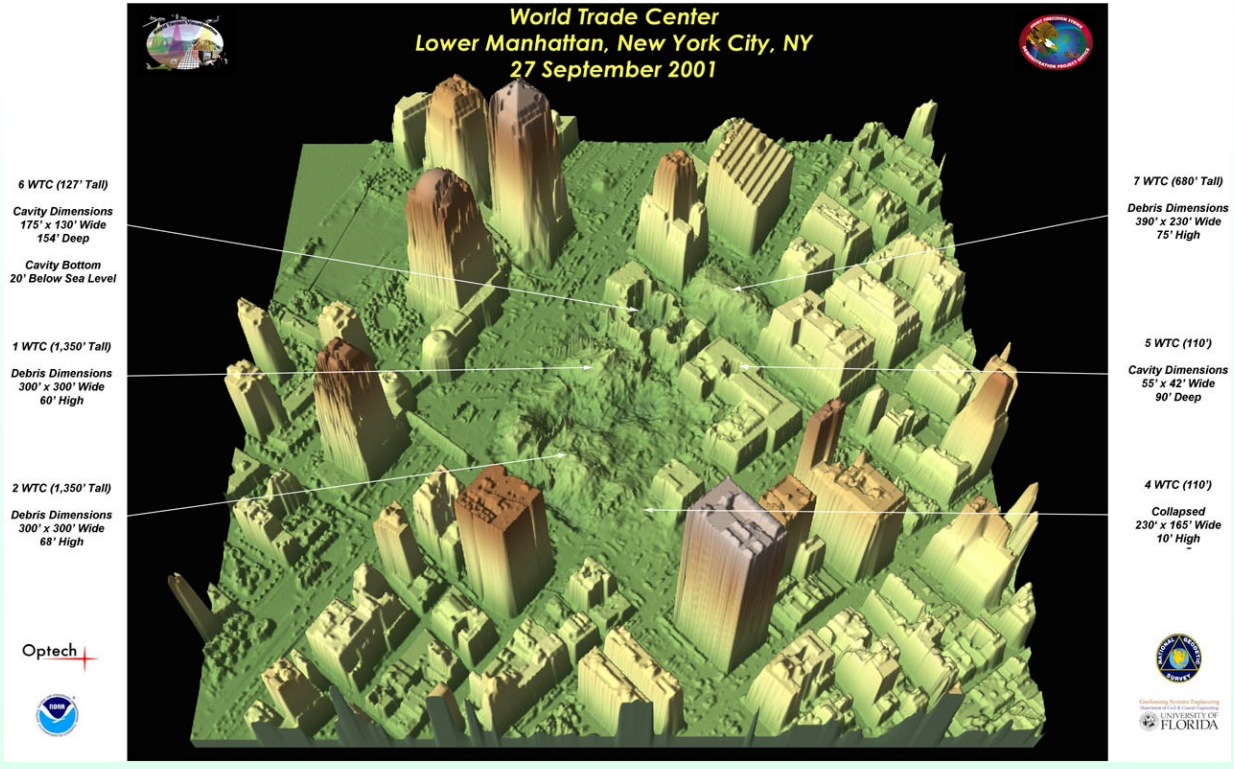


DASA-RT on JVB

- Dr. Andrews, Deputy Assistant Secretary of the Army – Research and Technology, Recognizes JVB on Three Occasions While Presenting Testimony to Congressional Committees.
  - 5 Jun 01 to Senate Armed Services Committee - Subcommittee on Emerging Threats and Capabilities
  - 26 June 01 to House Armed Services Committee - Subcommittee on Military Research and Development
  - 10 Apr 02 to Senate Armed Services Committee - Subcommittee on Emerging Threats and Capabilities

- **Advanced Simulation: … the Joint Virtual Battlespace, (JVB)** Program, is an Enabling Technology for Evaluating How FCS Contributes to the Total Capability of the Objective Force, and How the Objective Force Plays in a Joint Force. JVB, Combined With Virtual Prototyping, Also Could Provide an Effective Means for Performing Operational Test and Evaluation Without the Need for Numerous Hardware Test Articles. This Could Result in Significant Time and Financial Savings in the Army Acquisition Process.

Higher Resolution Terrain Data For Simulations



- **GEN Shinseki, Chief of Staff Army**, AUSA Symposium "Army Transformation in an Advanced Collaborative Environment", 5 Sep 2002, as reported by Defense Daily

"We need better simulated dirt *if going to continue, and to expand, the training of division and corps commanders and staff in simulations," … "We need to advance these concepts. Better simulated dirt, more realistic simulations for developing emerging systems, and advanced collaborative environments to leverage the potential of both."*

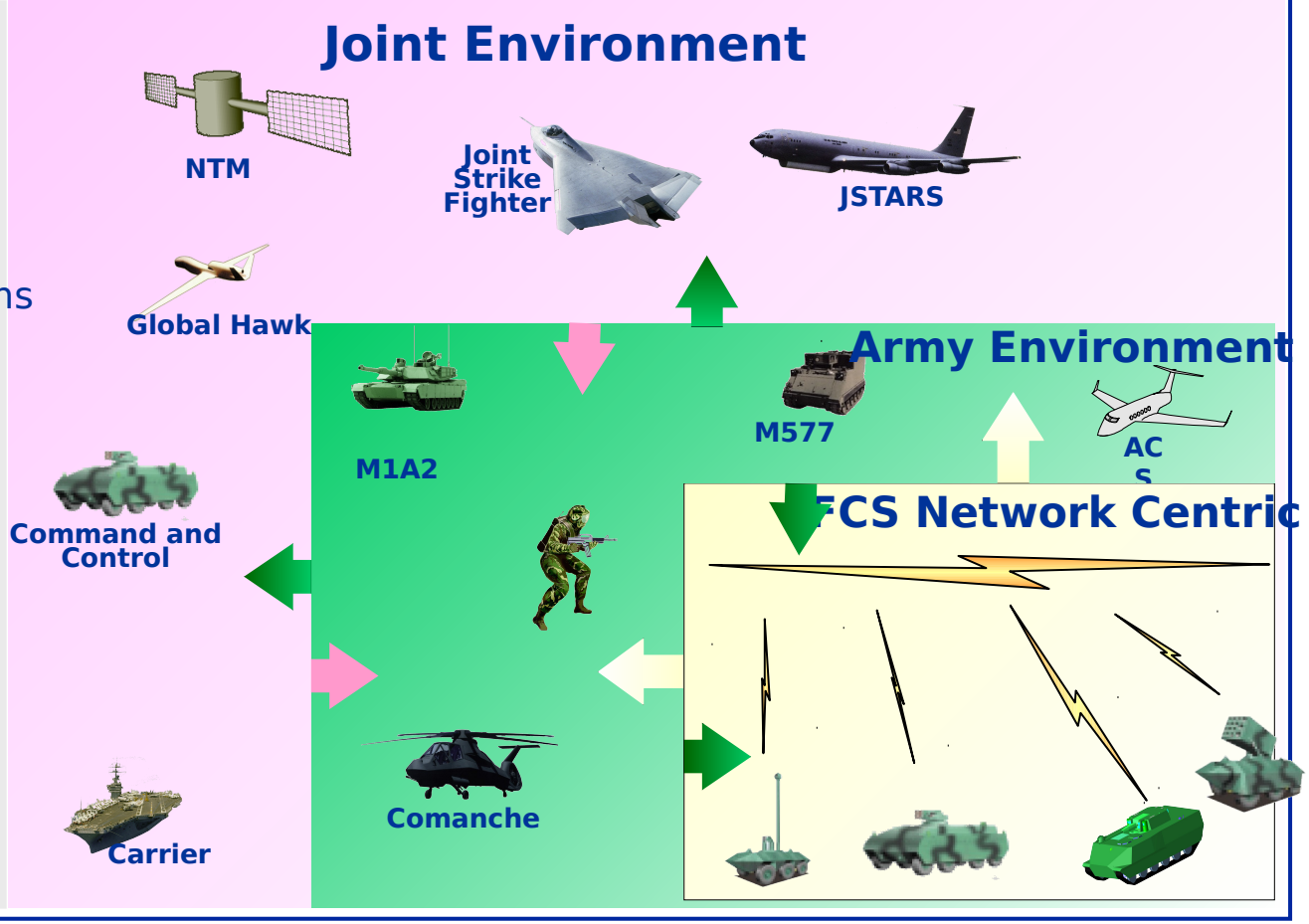
JVB

SMART
(Simulation & Modeling for Acquisition, Requirements and Training)…

…Tool To Support The Objective Force and Future Combat System

JVB Design Includes:

- Joint Forces
- Legacy Forces
- Objective Force
- Future Combat Systems
  - C4ISR
  - Sensors
  - Robots
  - New Weapons
- Dynamic Weather
- Logistics
- Dynamic Terrain
- High Fidelity Terrain
- Certified Data



Experiment Process

Who: Army Leaders / Objective Force Task Force / PM FCS / Training and Doctrine Command (TRADOC):

Role: Issue Identified / Clarified

Sponsor & JVB:

Experiment Designed

AMSAA & Others:

Required Input Data

JVB & Sponsor:

Run Experiment

JVB:

Output Data Collected / Reduced

Sponsor:

Analysis & Recommendation

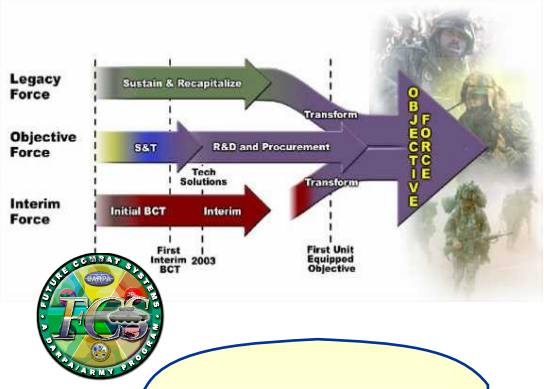
Joint Virtual Battlespace Team and Partners

IEW&S PROGRAM EXECUTIVE OFFICE

JOINT PRECISION STRIKE DEMONSTRATION PROJECT OFFICE

MANSCEN
- NBC Environment
- Obscurants

JPSD
- PM FCS Support
- Leverage ACTD's
- Joint C4ISR
- Integrated Analysis Tools
- Integration & Evaluation Center



STRICOM
- High Fidelity Live-Virtual-Constructive
- Semi Automated Forces

Standard, Flexible, Extensible Architecture Allows Integration of Models from Subject Matter Experts to support Army Transformation

JFCOM
- Joint C2 & Simulation Support

DMSO
- HLA Standards
- Enviro. Fed

AMSO
- M&S Policy
- SMART

AMC
- RDEC Federation

Sandia National Lab
- Robotics
- Sustainment/Reliability
- Human Factors
- Acoustics

Army Research Laboratory
- Human Workload
- Acoustics

COE ERDC
- Terrain/Weather
- Mobility
- Seismic

CECOM
- Night Vision Simulations
- Comms Model

TRADOC TRAC-Leavenworth
- Force-on-Force

ASA(ALT)
- Army S&T Investment
- Guidance

TRADOC
- MMBL
- TRAC Ft Lee
- FPBL

JVB Summary

Focused to Meet Objective Force and Future Combat System Schedule and

- Experiments Provide Data Supporting Analysis of Critical Army Issues
  - Use of information in the battlespace
  - Force Structure
  - Equipment Benefit to Warfighter
  - How to Fight with New Equipment
  - Logistics Impacts
- Only Army Architecture Designed to Support Network Centric Warfare Experiments and Evaluation from JTF to Individual Systems
- The Environmental Data Base is an important element of JVB's ability to provide a consistent common environment for simulation